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Air Quality Data for Sulfur Dioxide, 1969, 1970, and 1971

Environmental Protection Agency

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AIR QUALITY DATA FOR SULFUR DIOXIDE

1969, 1970, AND 1971

from the National Air Surveillance Networks

and

Contributing State and Local Networks

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Air quality data for sulfur dioxide 1969 through 1971, urban and nonurban sites, are presented. The data reported have been gathered at the cooperating stations of the National Air Surveillance (NASN) network. The sulfur dioxide samples were collected by bubbling air through a solution of potassium tetrachloromercurate and analyzed using the West Gaeke method. Valid data are presented as annual sample cumulative frequency distributions. The arithmetic and geometric mean are included.

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1969, 1970, AND 1971

ENVIRONMENTAL PROTECTION AGENCY
Office of Air Programs
Research Triangle Park, North Carolina 27711

November 1972

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Office of Air Programs Publication No. APTD-1354

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ABSTRACT

Air quality data for sulfur dioxide 1969 through 1971, urban and nonurban sites, are presented. The data reported have been gathered at the cooperating stations of the National Air Surveillance (NASN) network.

The sulfur dioxide samples were collected by bubbling air through a solution of potassium tetrachloromercurate and analyzed using the West Gaeke method. Valid data are presented as annual sample cumulative frequency distributions. The arithmetic and geometric mean are included.

AIR QUALITY DATA FOR SULFUR DIOXIDE 1969, 1970, AND 1971

SECTION 1. INTRODUCTION AND SUMMARY

The Environmental Protection Agency (EPA), with the assistance and cooperation of State and local agencies, conducts a variety of air sampling activities to obtain information about the air quality in the United States. Data on sulfur dioxide (SO_2) collected during 1969, 1970 and 1971 at the cooperating stations of the National Air Surveillance Networks (NASN) are reported.

SAMPLE COLLECTION AND ANALYSIS

Sulfur dioxide is collected by bubbling air through a 50 milliliter solution of potassium tetrachloromercurate at a flow rate of approximately 150-200 c.c./minute over a 24-hour sampling period. After collection the sample is returned to the laboratory where sulfamic acid is added to eliminate the interference from the oxides of nitrogen, and the resulting solution is reacted with pararosaniline and formaldehyde. The light absorption of the resulting solution is measured colorimetrically, at a wavelength of 548 nanometers. The results are expressed in micrograms of SO_2 per cubic meter of air samples.[1] Because decay of the collecting solution containing SO_2 occurs at the rate of about one percent per day, the NASN samples are analyzed on the 14th day after the specified sampling date (permitting the use of a uniform decay correction).

SAMPLING LOCATIONS

The monitoring sites are divided into two groups: urban sites (Tables 2-1, 3-1, and 4-1), located somewhere within a city or town or its suburban environs, and nonurban sites (Tables 2-2, 3-2, and 4-2) located in rural or remote areas to provide an indication of background levels of SO_2.

Each monitoring site is assigned a unique code number. Details of site coding and a list of codes already assigned are found in SAROAD Station Coding Manual.[2] Briefly, each twelve digit site identification number is assigned as follows: the first two digits identify the State, the next four digits identify a city of at least 2500 persons or a county (in some States the corresponding jurisdiction is a parish, election district, or regional planning district). The next three digits designate a specific address where the sampling equipment is operated. For example, 010380001 A 01 refers to State 01 (Alabama) city 0380 (Birmingham), and site 001 (619 South 19th Street). The final three characters (A01) designate the agency-project code. Some of the principal agency project codes are:

A01 EPA, population oriented surveillance

A03 EPA, background surveillance

F01 State agency, population oriented surveillance

G01 County agency, population oriented surveillance

H01 City agency, population oriented surveillance

A listing of sampling site addresses is available in a separate publication.[3]

SAMPLING SCHEDULE

The NASN data within this section originate from a bi-weekly modified random sampling schedule. The schedule is modified from completely random to insure an equal representation of days of the week.

In order to have reasonable assurance that the annual summary statistics are representative, each station's data must be distributed over the calendar year so that they meet the following validity criteria for inclusion in this summary publication: a minimum of five valid scheduled samples must be collected in each quarter (Jan., Feb., Mar., etc.), and if no samples are collected in one month, neither of the other two months may have less than two valid samples. Obviously, it is desirable for networks that schedule more frequent sampling to strive for a more balanced distribution of measurements than the possible extreme combinations that could technically meet these minimum conditions for NASN stations.

DATA SUMMARIES

The data are presented as annual sample cumulative frequency distributions. The frequency distributions are calculated by first ranking the values in ascending order. Based on the total number of values, the percentiles are calculated such that the percentage of actual sample values is less than or equal to the concentrations listed for that percentile. Interpolation between actual sample values is not used. For example, if 25 samples were ranked in ascending order, ten

percent of the samples would be 2.5 samples. So the concentration of the third value is shown in the tenth percentile column. Similarly, the twentieth percentile would be the fifth value.

When "zero" concentrations (shown as 0.0 in the data tables are reported, that is, values below the minimum detectable limit, the statistics (means and standard deviations) are calculated by replacing the "zeroes" with one half the minimum detectable limit. For these summaries, the minimum detectable limit is 5 $\mu g/m^3$, so 2.5 $\mu g/m^3$ is used to replace zeros for calculation purposes (In 1968 the laboratory procedure set the minimum detectable limit at 5 $\mu g/m^3$. However following the measurement of a high value--above 50 $\mu g/m^3$--the minimum detectable limit could briefly change to 10 $\mu g/m^3$ due to methodological problems. Because a high value was observed less than 5 percent of the time, the minimum detectable limit of 5 $\mu g/m^3$ was considered to be more representative of all data recorded during the year. In subsequent years--1970 and 1971--the method was remedied, eliminating this problem.) However, if between 25 and 50 percent of the values are below the detectable limit, the summary statistics are not calculated. Finally, if more than 50 percent of the values are below the detection limit, neither the summary statistics nor the frequency percentiles are calculated and the following statement is presented: "Number of samples ( ) below the minimum detectable exceeds 50%."

In the example sample frequency distribution below, primary annual arithmetic mean standard, (80 $\mu g/m^3$) is met; the second and annual mean standard (60 $\mu g/m^3$) is exceeded. The maximum value, 305 $\mu g/m^3$, is below the primary standard for a 24-hour interval (365 $\mu g/m^3$). By interpolating from the frequency distribution, it can be estimated that just over ten percent of the measurements exceed the secondary standard (280 $\mu g/m^3$).

Number of Samples	Min.	Frequency distribution, %									Max.	Arithmetic		Geometric	
		10	20	30	40	50	60	70	80	90		Mean	Std. Dev.	Mean	Std. Dev.
26	10	14	18	21	35	54	77	93	231	269	305	73	67.38	55	2.84

REFERENCES

1. Federal Register, Vol. 1, No. 84, Part II, April 30, 1971, pp. 8191-8194.
2. Fair, D. H., SAROAD Station Coding Manual, U. S. Environmental Protection Agency, Office of Air Programs Publication No. APTD-0907, Research Triangle Park, North Carolina 27711.
3. Directory of Air Quality Monitoring Sites, 1971, U. S. Environmental Protection Agency, Office of Air Programs Publication No. APTD-0979, Research Triangle Park, North Carolina 27711.

SECTION 2. URBAN AND NONURBAN SULFUR DIOXIDE, 1969

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Table 2-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
ALABAMA																
MOBILE																
012390002 A01	24	5	7	7	9	10	11	11	11	18	23	100	19	19.78	12	1.[illegible]
MONTGOMERY																
012460001 A01	26	0	5	5	7	7	7	8	9	17	19	24	10	5.88	8	1.73
ALASKA																
FAIRBANKS																
02C160001 A01	25	5	5	6	7	7	5	8	9	9	16	28	9	5.45	7	1.54
ARIZONA																
PHOENIX																
030600002 A01	29	5	5	6	7	7	8	9	10	11	19	22	10	4.74	9	1.54
TUCSON																
030860001 A01	22	5	5	7	7	7	7	9	10	11	[illegible]	27	10	5.23	9	1.54
ARKANSAS																
EL DORADO																
04C790001 A01	23	7	7	7	11	11	12	13	14	18	27	69	17	15.11	13	1.82
LITTLE ROCK																
041440001 A01	25	0	5	5	7	7	8	9	11	12	19	61	13	13.66	9	1.99
CALIFORNIA																
ANAHEIM																
050230001 A01	25	0	5	9	11	11	12	12	13	18	21	31	13	6.66	11	1.84
BERKELEY																
050740001 A01	23	0	7	7	8	9	10	11	13	18	21	73	14	14.19	11	1.95
LONG BEACH																
054100001 A01	25	7	11	17	20	26	35	41	49	52	59	66	35	17.93	30	1.88
SAN BERNARDINO																
056662001 A01	23	0	6	7	7	8	9	9	9	11	13	20	9	3.54	8	1.57
SAN DIEGO																
056800001 A01	26	5	5	7	7	9	10	11	13	18	18	30	12	5.96	10	1.63
SAN FRANCISCO																
056860001 A01	25	0	0	5	7	7	9	10	14	15	27	82	15	20.58	10	2.42
SAN JOSE																
056980002 A01	26	0	5	7	7	7	8	9	11	11	14	19	9	3.53	9	1.52
SANTA ANA																
057190001 A01	23	0	7	7	8	11	11	13	14	18	19	22	12	5.29	11	1.68
COLORADO																
DENVER																
06C580001 A01	21	5	5	9	12	12	14	15	18	20	30	39	17	10.02	15	1.91
06C580002 A01	26	5	7	9	9	10	11	17	23	29	51	46	17	11.29	14	1.91
CONNECTICUT																
[illegible]																
07C420001 A01	26	0	7	16	18	29	32	38	97	111	128	178	56	50.92	34	3.07
NEW HAVEN																
07C790001 A01	25	5	7	8	9	14	22	47	70	208	254	411	85	116.39	33	4.28
WATERBURY																
071240001 A01	25	5	7	7	9	10	11	11	25	36	60	125	25	31.29	16	2.51
DELAWARE																
WILMINGTON																
08C260001 A01	25	5	6	7	9	11	13	22	39	48	133	189	42	54.82	21	3.25
DIST COLUMBIA																
WASHINGTON																
090020001 A01	24	5	7	7	14	17	19	29	31	47	69	85	29	22.93	20	2.38
090020003 A01	26	7	18	25	28	35	37	43	53	90	102	178	50	37.93	39	2.07
FLORIDA																
JACKSONVILLE																
101960002 A01	26	5	5	9	9	11	12	14	16	19	27	31	14	7.54	1[illegible]	1.[illegible]
MIAMI																
102700002 A01	26	5	5	7	7	7	8	9	11	11	13	25	10	4.65	9	1.48
ST PETERSBURG																
103980002 A01	26	5	7	7	10	12	16	18	30	37	71	91	26	24.74	18	2.37
TAMPA																
104360002 A01	25	5	7	7	11	13	18	19	26	30	37	112	23	22.23	17	2.14
GEORGIA																
ATLANTA																
11C200001 A01	26	0	5	9	9	11	13	23	38	52	57	83	26	22.62	17	2.58
SAVANNAH																
114900001 A01	25	5	7	7	9	10	11	16	20	24	32	112	19	21.24	14	2.05

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
ILLINOIS																
CHICAGO																
1612200002 A01	25	7	28	30	74	81	123	177	262	361	448	496	184	159.081	114	3.08
ROCKFORD																
1466800001 A01	26	7	10	14	16	20	21	23	35	37	68	100	30	23.551	24	1.99
INDIANA																
EAST CHICAGO																
1511400001 A01	24	16	23	35	39	70	73	93	108	194	260	296	98	79.431	72	2.28
EVANSVILLE																
1513500001 A01	26	7	7	14	17	19	21	26	29	53	73	107	32	26.381	24	2.15
GARY																
1515700001 A01	25	5	7	9	11	14	19	23	29	36	91	193	33	34.631	21	2.57
HAMMOND																
1517400001 A01	26	10	14	16	21	45	54	66	93	128	291	305	85	83.191	53	2.92
INDIANAPOLIS																
1520400001 A01	25	0	7	10	13	18	23	34	51	56	91	164	42	39.501	26	2.85
NEW ALBANY																
1529400002 A01	23	7	7	11	16	21	26	32	35	49	62	218	38	44.751	25	2.39
IOWA																
DES MOINES																
1611400001 A01	25	0	5	5	7	7	9	11	15	17	29	95	17	22.101	11	2.34
DUBUQUE																
1612600001 A01	24	0	5	5	7	7	8	9	14	29	61	119	21	30.941	11	2.83
KANSAS																
TOPEKA																
1739600001 A01	24	0	0	5	6	7	7	7	9	11	11	30	8	5.471	7	1.79
WICHITA																
1737400001 A01	25	0	5	6	7	7	7	7	9	10	11	16	8	2.711	7	1.64
KENTUCKY																
COVINGTON																
1804300001 A01	26	7	10	10	11	16	27	29	37	41	59	121	31	27.201	23	2.20
LOUISVILLE																
1829900001 A01	24	7	9	10	22	26	29	35	39	56	83	132	38	31.431	29	2.29
LOUISIANA																
NEW ORLEANS																
1920200002 A01	24	5	5	6	7	7	7	9	10	11	15	15	9	3.231	8	1.63
MARYLAND																
BALTIMORE																
2101200001 A01	24	7	14	18	24	38	42	63	66	106	113	172	58	42.911	42	2.35
MASSACHUSETTS																
SPRINGFIELD																
2221400002 A01	26	11	25	31	35	37	40	48	78	115	125	192	63	44.841	50	1.97
WORCHESTER																
2226400001 A01	25	7	14	17	27	29	33	45	80	171	181	338	76	89.121	45	2.77
MICHIGAN																
DETROIT																
2311400001 A01	26	12	22	25	29	39	50	61	73	91	94	111	55	31.091	46	1.99
FLINT																
2315400001 A01	25	7	9	9	12	13	20	23	29	35	66	72	25	19.021	20	2.00
GRAND RAPIDS																
2319200001 A01	25	6	7	8	9	14	17	19	21	25	37	53	19	12.401	16	1.85
LANSING																
2320400001 A01	23	0	9	11	11	14	16	17	22	29	66	76	23	20.661	17	2.20
SAGINAW																
2347600001 A01	24	7	10	11	12	15	17	20	21	35	42	86	23	17.151	19	1.81
MINNESOTA																
MINNEAPOLIS																
2422600001 A01	25	0	5	7	9	11	13	17	25	38	75	104	26	28.901	16	2.70
MISSOURI																
KANSAS CITY																
2623800002 A01	23	5	5	7	7	9	9	11	14	22	24	49	16	11.361	11	1.96
ST LOUIS																
2640280001 A01	24	9	11	15	23	40	62	73	100	119	144	266	73	67.381	46	2.78
2640280002 A01	25	7	18	20	27	48	57	70	85	91	163	218	69	55.731	50	2.41
NEBRASKA																
OMAHA																
2819970001 A01	26	5	7	7	7	8	9	11	12	15	38	77	15	15.761	11	1.97

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

SAMPLING INTERVAL : 24-HOUR

METHOD: [illegible]

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
NEW JERSEY																
BURLINGTON CO 310660002 A01	24	7	9	12	15	21	25	32	38	47	70	117	33	26.73	25	2.16
CAMDEN 310720001 A01	26	7	56	79	84	105	110	140	178	196	226	292	131	70.72	105	2.15
GLASSBORO 3417C001 A01	26	0	5	5	7	7	7	7	8	9	11	13	7	2.37	7	1.41
JERSEY CITY 312320001 A01	25	0	5	5	7	7	7	13	17	42	104	192	30	42.25	13	3.33
NEWARK 313480001 A01	25	0	10	21	35	42	48	53	76	98	135	159	61	45.08	44	2.67
PATERSON 314140001 A01	22	7	7	22	28	34	44	58	89	86	118	140	57	45.88	39	2.84
NEW MEXICO																
ALBUQUERQUE 320040001 A01	23	0	5	5	6	7	8	8	10	11	15	43	11	15.94	8	1.95
NEW YORK																
ALBANY 33C040001 A01	26	7	12	18	24	32	44	50	59	61	91	149	46	35.98	38	2.09
BUFFALO 33C660001 A01	23	5	7	7	8	9	10	11	12	14	19	19	11	3.54	10	1.40
ROCHESTER 335760001 A01	25	0	9	11	26	33	42	51	69	113	153	256	64	63.38	39	3.04
SYRACUSE 336620001 A01	24	7	8	11	14	16	22	29	31	37	40	79	26	18.55	21	2.00
UTICA 336940001 A01	26	7	7	7	9	11	15	22	27	32	46	68	21	16.73	17	2.07
NORTH CAROLINA																
GREENSBORO 341740001 A01	25	5	7	7	9	12	14	19	26	30	45	58	20	14.35	15	2.04
OHIO																
AKRON 360760001 A01	23	5	8	9	13	23	36	47	58	98	111	149	51	44.98	32	2.92
CANTON 361C0001 A01	26	8	14	17	22	28	28	33	40	48	74	93	34	20.69	29	1.91
CINCINNATI																
361270001 A01	23	7	9	10	15	16	19	22	23	40	47	116	26	24.36	20	2.05
361720003 A01	26	7	11	14	17	20	21	31	46	47	59	73	30	18.86	24	1.92
CLEVELAND 361300001 A01	26	7	14	40	40	55	58	67	73	79	114	248	46	47.25	32	2.19
COLUMBUS 361460001 A01	26	7	13	17	19	21	22	25	32	42	56	83	29	17.42	25	1.75
DAYTON 361560001 A01	26	0	0	5	7	9	9	11	11	13	15	27	10	5.47	8	1.46
TOLEDO 366600001 A01	26	7	9	18	19	21	26	29	38	52	65	95	33	22.94	27	1.97
YOUNGSTOWN 367740001 A01	26	9	10	19	26	33	41	49	59	79	134	342	52	59.94	39	2.10
OKLAHOMA																
TULSA 375300001 A01	26	0	5	5	7	7	7	7	9	9	11	14	8	2.57	7	1.41
PENNSYLVANIA																
ALLENTOWN 390120001 A01	24	7	16	20	27	38	49	61	67	103	119	229	57	50.99	42	2.29
JOHNSTOWN 394460001 A01	24	11	14	16	27	27	29	39	45	67	91	121	39	25.78	32	1.97
PHILADELPHIA 397140001 A01	25	11	18	27	44	49	51	57	67	127	155	176	70	48.41	55	2.10
PITTSBURGH 397260001 A01	26	7	15	45	58	66	76	90	91	100	134	196	76	40.75	67	2.15
READING 397620001 A01	25	5	7	8	14	21	32	38	50	99	147	243	56	54.19	36	2.72
WARMINSTER 399160001 A01	25	9	9	10	16	19	25	29	31	45	56	95	28	19.97	24	1.96
WEST CHESTER 399240001 A01	26	5	7	7	9	15	17	19	23	40	55	124	26	25.29	17	2.25
YORK 399560002 A01	26	5	9	13	20	26	40	54	65	68	86	114	44	30.18	32	2.42

Table 2-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTIONS FOR 1969

YEAR : 1969

SAMPLING INTERVAL : 24-HOUR

METHOD: BUBBLER/WEST-GAEKE

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
PUERTO RICO																
BAYAMON 40098002 A01	26	5	5	7	7	7	7	9	9	10	14	35	9	5.89	8	1.53
CLAYANILLA 40160002 A01	24	0	7	7	9	10	11	16	17	20	21	36	14	7.37	12	1.79
RHODE ISLAND																
PROVIDENCE 41090001 A01	26	9	12	19	25	63	67	114	190	214	351	369	121	111.92	69	3.33
SOUTH DAKOTA																
BLACK HILLS NAT PK 46110001 A01	26	0	5	5	6	7	7	7	9	10	14	17	8	3.66	7	1.59
CUSTER CO 46420001 A01	26	0	5	5	6	7	7	7	9	10	14	17	8	3.66	7	1.59
TENNESSEE																
CHATTANOOGA 46380001 A01	26	0	0	5	7	8	9	10	13	13	15	72	11	13.00	9	2.00
MEMPHIS 47340001 A01	26	5	5	7	7	7	8	9	10	11	19	37	10	5.96	9	1.57
NASHVILLE 47560001 A01	24	0	7	7	8	9	10	12	21	24	65	82	20	20.94	13	2.16
TEXAS																
DALLAS 48110002 A01	25	3	5	7	7	7	9	9	10	11	16	17	9	3.45	8	1.50
FORT WORTH 48440001 A01	26	0	5	6	7	7	7	8	11	12	26	42	11	9.13	8	1.96
HOUSTON 48960001 A01	26	0	0	6	7	7	8	9	9	13	18	38	10	7.11	8	1.96
PASADENA 48[illegible] A01	26	0	5	5	7	7	7	7	11	19	23	58	12	12.29	8	2.07
SAN ANTONIO 48970001 A01	25	5	5	6	7	7	7	7	8	9	13	36	9	5.71	8	1.69
UTAH																
SALT LAKE CITY 49[illegible] A01	25	6	7	9	11	13	18	21	21	31	63	181	29	36.73	19	2.29
VIRGINIA																
ROANOKE 49[illegible] A01	26	7	9	11	14	20	24	36	45	60	82	109	36	28.41	26	2.21
[illegible] CO 49[illegible] A01	26	5	5	7	7	8	11	11	12	16	18	22	11	4.74	10	1.56
[illegible] 49[illegible] A01	25	0	11	11	14	17	18	22	35	47	66	72	23	21.39	22	1.96
[illegible] 49[illegible] A01	26	5	5	7	7	9	11	11	12	16	18	22	11	4.74	10	1.56
WASHINGTON																
SEATTLE 49[illegible] A01	27	11	11	17	19	21	24	36	39	50	87	165	41	47.69	30	2.19
WEST VIRGINIA																
CHARLESTON 50290001 A01	26	5	11	14	16	19	18	22	32	39	104	169	35	47.57	26	2.24
WISCONSIN																
MILWAUKEE 51220001 A01	25	0	7	9	11	13	16	19	21	22	27	38	16	7.07	16	1.43
WYOMING																
CASPER 51120001 A01	25	5	7	7	7	7	[illegible]	[illegible]	11	11	23	76	16	15.77	10	1.[illegible]

Table 2-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1969

YEAR : 1969

SAMPLING INTERVAL : 24-HOUR

METHOD: BUBBLER/WEST-GAEKE

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %									MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90		MEAN	STD. DEV.	MEAN	STD. DEV.
DELAWARE																
KENT CO																
080060001 A03	24	0	7	7	13	16	18	28	28	32	37	45	21	12.35	17	2.13
INDIANA																
MONROE CO																
152800001 A03	23	5	7	7	8	9	9	11	13	14	26	51	15	10.61	11	1.91
LOUISIANA																
IBERVILLE PAR																
191280001 A03	25	5	7	7	7	7	11	11	12	13	14	22	10	3.93	9	1.45
MAINE																
ACADIA NAT PARK																
200010001 A03	25	0	5	7	7	7	7	8	10	11	16	24	9	4.57	8	1.58
200500001 A03	25	0	5	7	7	7	7	8	10	11	16	24	9	4.57	8	1.58
PENNSYLVANIA																
CLEARFIELD CO																
391820001 A03	25	0	7	7	9	9	11	11	16	18	24	59	15	12.24	12	1.92
INDIANA CO																
394240001 A03	25	9	11	16	17	19	21	25	30	35	39	55	24	11.31	22	1.63

SECTION 3. URBAN AND NONURBAN SULFUR DIOXIDE, 1970

Table 3-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970 METHOD: RUBELEN/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
ALABAMA																
MONTGOMERY 012660001 A01	22	0	0	0	0	0	0	8	9	13	15	20				
ARIZONA																
TUCSON 030840001 A01	25	0	0	0	0	0	7	8	9	10	13	23				
CALIFORNIA																
ANAHEIM 057230031 A01	26	0	0	0	0	5	7	8	12	14	19	27				
GLENDALE 052940001 A01	25	0	0	0	0	7	12	12	13	17	27	33				
LONG BEACH 056170031 A01	26	0	0	11	15	17	34	43	49	57	65	87	35	26.97	23	2.97
OAKLAND 055900001 A01	23	0	0	0	0	0	8	9	11	12	13	62				
SAN BERNARDINO 056640001 A01	25	0	0	0	0	0	5	8	9	11	13	15				
SAN DIEGO 055600101 A01	25	0	0	0	0	6	7	12	13	14	19	32				
SAN FRANCISCO 054960031 A01	25	0	0	0	0	0	7	8	10	12	19	28				
SANTA ANA 057140001 A01	24	0	0	0	0	0	5	6	7	10	19	21				
COLORADO																
DENVER 060590001 A01	25	0	0	0	0	7	11	13	15	19	27	40				
060990002 A01	25	0	0	0	5	6	7	9	13	17	23	43				
CONNECTICUT																
BRIDGEPORT 070240001 A01	26	0	0	0	0	5	8	16	29	74	176	213				
HARTFORD 070420001 A01	25	0	0	7	15	26	45	50	75	102	121	225	57	56.32	30	3.93
NEW HAVEN 070930001 A01	27	0	0	7	10	17	20	26	29	45	131	215	40	56.901	18	3.69
WATERBURY 071740001 A01	27	0	0	7	8	11	14	15	18	27	43	56	17	14.901	12	2.46
DELAWARE																
WILMINGTON 080140031 A01	25	0	0	0	0	5	7	16	19	23	30	112				
WILMINGTON 080260033 A01	24	0	0	0	7	8	8	10	15	18	61	78				
FLORIDA																
MIAMI 102790102 A01	26	0	0	0	0	0	7	8	9	10	12	20				
ST PETERSBURG 103460002 A01	26	0	0	5	6	8	8	11	13	21	39	46	17	22.121	10	2.76
TAMPA 104360002 A01	24	0	0	0	0	7	9	15	17	22	33	92				
GEORGIA																
ATLANTA 111280001 A01	26	0	0	0	7	9	12	16	23	28	47	104				
COLUMBUS 111240001 A01	24	0	0	0	0	5	8	9	11	12	15	19				
SAVANNAH 114900001 A01	25	0	0	0	0	7	9	11	11	16	21	29				
ILLINOIS																
CHICAGO 141220001 A01	26	0	0	17	28	35	47	61	87	111	179	305	72	77.661	45	4.15
141720002 A01	25	0	7	12	15	20	64	138	204	220	299	419	120	124.841	48	4.07
INDIANA																
EAST CHICAGO 151190001 A01	26	0	7	11	16	27	41	66	86	101	118	197	57	50.701	33	3.67
EVANSVILLE 151900001 A01	24	0	0	10	14	18	21	31	32	39	48	81	25	18.51	18	2.63
HAMMOND 151780001 A01	25	0	0	13	17	19	29	32	56	142	171	305	[illegible]	[illegible]	[illegible]	[illegible]
INDIANAPOLIS 152040001 A01	24	0	0	7	11	12	14	31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SOUTH BEND 153940002 A01	24	0	0	0	5	7	7	8	10	13	21	45				

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
IOWA																
DES MOINES																
181980001 A01	26	0	0	0	0	9	7	8	12	19	27	59				
KANSAS																
WICHITA																
173740001 A01	24	0	0	0	0	5	5	7	8	9	12	17				
KENTUCKY																
BOWLING GREEN																
140120001 A01	25	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%									42				
COVINGTON																
140480001 A01	25	0	5	6	12	18	25	25	35	39	54	62	26	17.67	18	2.57
LEXINGTON																
142970001 A01	27	0	0	0	0	5	5	8	10	18	36	72				
LOUISVILLE																
182990002 A01	24	0	0	0	7	8	13	16	19	34	67	99	23	27.51	13	3.21
LOUISIANA																
NEW ORLEANS																
192020002 A01	24	0	0	0	0	5	6	7	8	11	19	20				
MARYLAND																
BALTIMORE																
210120001 A01	26	0	10	15	15	30	39	45	67	94	136	162	54	44.54	33	3.11
MASSACHUSETTS																
SPRINGFIELD																
222160002 A01	25	0	10	14	36	42	57	80	103	159	184	297	87	80.23	51	3.33
WORCHESTER																
222440001 A01	23	0	0	0	5	13	15	21	25	59	104	112	31	36.60	15	3.68
MICHIGAN																
DETROIT																
231140001 A01	25	0	0	7	16	21	24	34	44	61	83	172	38	37.34	23	3.11
FLINT																
231590001 A01	26	0	0	6	8	12	15	18	19	19	27	58	16	12.92	11	2.48
GRAND RAPIDS																
231820001 A01	26	0	0	5	6	7	10	11	15	17	30	48	13	11.17	10	2.21
LANSING																
237940001 A01	24	0	0	5	8	10	14	17	26	29	43	125	22	27.04	13	2.94
SAGINAW																
234760001 A01	26	0	0	0	6	9	12	15	17	23	36	98				
MINNESOTA																
MINNEAPOLIS																
242760001 A01	24	0	0	0	9	11	14	15	17	63	152	223	38	59.62	15	3.91
MISSOURI																
ST LOUIS																
264280002 A01	26	0	0	10	13	16	23	40	49	68	111	132	40	39.17	23	3.29
NEW JERSEY																
BURLINGTON CO																
310660002 A01	27	0	0	0	5	13	17	29	36	42	104	148	32	40.44	15	3.66
CAMDEN																
310720001 A01	26	0	0	7	10	15	21	59	126	129	149	238	69	75.71	28	4.86
GLASSBORO																
311780001 A01	26	0	0	0	0	9	6	8	9	11	14	15				
JERSEY CITY																
312520001 A01	25	0	0	10	26	39	49	57	78	108	234	240	75	76.87	39	3.98
NEWARK																
313480001 A01	24	0	0	0	7	9	15	25	33	40	125	251	37	56.84	16	3.91
PATERSON																
314140001 A01	26	0	0	0	0	7	9	17	44	52	70	131				
NEW MEXICO																
ALBUQUERQUE																
320040001 A01	27	0	NO. OF SAMPLES (16) BELOW MIN. DET. EXCEEDS 50%									21				
NEW YORK																
ALBANY																
330040001 A01	25	0	0	0	5	7	10	12	24	35	56	90				
ROCHESTER																
335760001 A01	24	0	0	6	9	13	14	27	32	42	69	227	32	46.34	16	3.35
NORTH CAROLINA																
GREENSBORO																
341740001 A01	26	0	0	0	0	6	7	12	14	20	32	52				

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: [illegible]

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
OHIO																
AKRON																
360060001 A01	26	0	5	20	25	41	45	56	66	75	102	125	51	34.72	35	2.90
CANTON																
361000001 A01	25	0	0	6	10	13	21	31	40	49	59	123	30	27.81	19	2.98
CINCINNATI																
361220009 A01	26	0	7	10	13	17	21	27	36	37	44	95	25	19.29	19	2.57
CLEVELAND																
361300001 A01	26	0	18	30	37	51	55	62	69	80	115	290	64	51.93	47	2.47
COLUMBUS																
361460001 A01	26	0	0	7	8	13	14	23	30	32	43	71	22	17.98	15	2.70
DAYTON																
361660001 A01	25	0	0	5	8	10	15	22	33	35	89	87	25	25.54	15	3.05
TOLEDO																
366600001 A01	26	0	0	5	6	8	8	11	13	19	27	51	13	12.43	9	2.19
YOUNGSTOWN																
367760001 A01	25	0	5	7	16	17	22	25	39	47	58	88	30	21.90	21	2.65
OKLAHOMA																
OKLAHOMA CITY																
375200001 A01	25	0	0	0	0	0	4	7	8	8	[illegible]	19				
PENNSYLVANIA																
ALLENTOWN																
390120001 A01	26	0	0	0	7	23	29	57	80	87	135	235	57	61.46	25	4.49
JOHNSTOWN																
394490001 A01	25	0	0	0	0	8	20	26	33	42	67	89				
PHILADELPHIA																
397140001 A01	25	9	15	21	50	61	66	97	113	125	165	219	84	57.41	65	2.47
397140002 A01	24	0	7	21	36	39	50	71	82	109	219	243	73	69.55	44	3.21
PITTSBURGH																
397760001 A01	25	0	8	26	38	43	53	60	65	74	130	149	57	38.95	40	2.90
READING																
397620001 A01	25	0	0	0	7	8	14	16	43	55	63	131	30	33.97	14	3.72
WARRINGTON																
399160001 A01	26	0	0	0	5	7	11	22	30	69	80	126	29	33.61	14	3.69
YORK																
399460002 A01	25	0	0	5	6	10	15	24	42	52	85	96	31	31.00	17	3.44
PUERTO RICO																
BAYAMON																
4CC380002 A01	25	0	0	0	0	7	9	10	12	14	20	27				
GUAYANILLA																
4CC080002 A01	24	0	0	0	0	0	7	8	13	18	23	154				
RHODE ISLAND																
PROVIDENCE																
410300001 A01	26	0	0	11	14	23	35	61	79	101	160	291	67	77.59	32	4.02
TENNESSEE																
CHATTANOOGA																
440180001 A01	25	0	0	0	0	7	11	15	20	23	64	74				
MEMPHIS																
447940001 A01	24	0	0	0	5	7	7	9	11	16	19	208				
NASHVILLE																
447940001 A01	24	0	0	0	6	9	11	15	19	25	28	55	15	12.96	11	2.51
TEXAS																
AUSTIN																
450270007 A01	24	0	0	0	0	0	[illegible]	7	8	9	12	17				
BEAUMONT																
450330001 A01	23	0	0	0	0	0	[illegible]	7	8	12	15	30				
CORPUS CHRISTI																
451150001 A01	24	0	0	0	0	0	5	7	8	9	10	25				
DALLAS																
451310002 A01	24	0	0	0	0	0	6	6	10	11	17	20				
EL PASO																
451730002 A01	25	0	6	8	9	11	18	21	25	30	40	116	23	23.79	16	2.49
FORT WORTH																
451480001 A01	24	0	0	0	0	5	7	9	9	11	17	27				
HOUSTON																
452960001 A01	25	0	0	0	0	6	10	12	13	15	16	62				
SAN ANTONIO																
454970001 A01	24	0	0	0	0	6	7	7	8	9	13	17				

Table 3-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: [illegible]

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
UTAH																
SALT LAKE CITY																
460970001 A01	26	0	0	0	0	7	7	8	11	11	23	34				
VIRGINIA																
NORFOLK																
487140001 A01	25	0	0	8	13	16	19	18	29	35	51	99	26	24.79	17	2.73
RICHMOND																
487660002 A01	21	0	0	5	9	11	14	29	38	40	54	70	24	20.40	15	3.11
WASHINGTON																
SEATTLE																
491840001 A01	26	0	0	0	5	12	20	26	28	34	46	77	22	19.02	13	3.15
TACOMA																
492140001 A01	23	0	0	0	0	7	9	11	11	12	16	39				
WEST VIRGINIA																
CHARLESTON																
500280001 A01	26	0	0	7	8	11	13	15	24	29	74	166	27	37.33	14	3.01
WISCONSIN																
MILWAUKEE																
512200001 A01	25	0	0	6	7	9	13	17	20	27	29	39	16	10.74	12	2.29
WYOMING																
CASPER																
520120001 A01	25	0	0	0	0	0	6	10	17	15	21	27				

Table 3-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1970

YEAR : 1970

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %									MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90		MEAN	STD. DEV.	MEAN	STD. DEV.
HAWAII																
HAWAII CO																
120080002 A03	23	0	0	0	0	0	5	7	8	12	16	25				
INDIANA																
MONROE CO																
152800001 A03	25	0	0	0	5	7	8	9	11	12	21	27				
LOUISIANA																
IBERVILLE PAR																
191240001 A03	24	0	0	0	0	5	6	7	8	11	15	24				
MAINE																
ACADIA NAT PARK																
200010001 A03	24	0	0	0	0	0	7	8	10	13	19	23				
VIRGINIA																
SHENANDOAH NAT PAR																
482890001 A03	25	0	0	0	0	0	5	7	8	10	18	42				

SECTION 4. URBAN AND NONURBAN SULFUR DIOXIDE, 1971

Table 4-1. SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
ALABAMA																
BIRMINGHAM 01630003 A01	24	0	0	0	5	5	5	7	8	9	11	16	7	3.77	6	1.80
MONTGOMERY 012460001 A01	24	0	0	0	0	0	0	6	7	9	11	19				
ARIZONA																
PHOENIX 030630002 A01	23	0	0	5	6	7	7	9	10	12	13	59	10	11.48	8	2.08
CALIFORNIA																
ANAHEIM 060230001 A01	23	0	0	5	6	9	10	11	14	16	29	44	12	10.02	9	2.16
SAN FRANCISCO 060660001 A01	22	0	0	0	4	7	7	7	10	11	11	31	8	5.47	6	1.90
SAN JOSE 060990002 A01	26	0	0	0	0	0	0	7	7	9	11	16				
CONNECTICUT																
NEW HAVEN 070700001 A01	26	0	0	7	11	17	23	39	59	62	103	154	40	40.15	23	3.35
WATERBURY 071240001 A01	24	7	7	12	24	34	35	42	44	57	95	158	44	37.84	31	2.37
DELAWARE																
WILMINGTON 090260003 A01	23	0	5	7	12	16	22	28	32	59	62	96	30	26.53	20	2.09
FLORIDA																
MIAMI 102700002 A01	24	0	0	0	0	0	0	5	6	7	7	9				
ST PETERSBURG 103980002 A01	25	0	0	0	5	6	8	9	14	26	36	111				
TAMPA 104960002 A01	25	0	0	0	5	10	11	13	21	40	52	70	20	20.58	11	3.11
GEORGIA																
ATLANTA 110230001 A01	24	0	7	7	11	14	16	23	24	35	45	71	22	15.53	16	2.85
COLUMBUS 111280001 A01	23	0	0	0	0	0	5	6	7	7	10	28				
SAVANNAH 114500001 A01	26	0	0	0	0	7	7	7	7	10	16	25				
ILLINOIS																
CHICAGO 141220002 A01	27	0	7	11	14	24	49	73	107	117	194	296	73	75.62	37	3.74
INDIANA																
EVANSVILLE 151430001 A01	24	0	5	7	10	11	14	20	22	29	35	63	19	14.20	14	2.26
HAMMOND 151740001 A01	24	0	6	7	12	14	17	26	32	46	98	109	32	32.08	20	2.75
INDIANAPOLIS 152040001 A01	22	0	0	5	5	7	8	11	14	15	20	37	11	9.43	8	2.22
NEW ALBANY 152990002 A01	22	0	NO. OF SAMPLES : 133 BELOW MIN. DET. EXCEEDS 50%									11				
IOWA																
DES MOINES 161190001 A01	24	0	0	0	0	0	5	7	7	13	11	16				
KANSAS																
KANSAS CITY 171900002 A01	23	0	0	0	0	0	7	10	11	13	14	37				
WICHITA 173740001 A01	25	0	0	0	0	0	5	5	7	7	9	24				
KENTUCKY																
COVINGTON 180890001 A01	25	0	0	5	7	11	13	15	21	22	55	67	19	17.85	13	2.57
LOUISIANA																
BATON ROUGE 190290001 A01	24	0	0	0	5	5	7	8	9	14	21	67				
NEW ORLEANS 192020002 A01	23	0	0	0	0	5	5	7	7	9	11	13				
SHREVEPORT 192740001 A01	24	0	NO. OF SAMPLES : 133 BELOW MIN. DET. EXCEEDS 50%									17				
MARYLAND																
BALTIMORE 210120001 A01	24	0	0	5	8	10	14	24	27	40	101	112	28	34.24	15	3.36

Table 4-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
MASSACHUSETTS																
FALL RIVER																
220980002 A01	20	0	0	5	8	10	16	22	27	48	51	138	24	31.07	15	3.07
WORCHESTER																
222840001 A01	21	0	0	10	13	17	29	44	52	59	118	191	45	44.43	24	3.45
MICHIGAN																
DETROIT																
261180051 A01	23	0	0	5	5	7	9	10	12	21	25	32	12	9.02	9	2.27
SAGINAW																
264760001 A01	26	0	0	0	6	7	7	9	11	31	29	48				
MINNESOTA																
ST PAUL																
243300001 A01	25	0	0	5	7	7	9	9	22	33	82	86	23	28.09	12	3.15
MISSOURI																
ST LOUIS																
264240001 A01	21	0	0	0	5	6	9	9	13	14	15	41				
264260002 A01	26	0	5	7	10	15	22	28	37	50	55	91	28	21.82	19	2.57
NEBRASKA																
OMAHA																
281440001 A01	25	0	0	0	7	7	9	10	12	14	33	73	13	14.49	8	2.51
NEW JERSEY																
BURLINGTON CO																
310660002 A01	24	0	0	0	0	5	7	10	12	14	19	47				
TRENTON																
315400001 A01	23	0	0	0	0	5	5	7	9	11	12	20				
NEW YORK																
ALBANY																
350040001 A01	23	0	5	13	17	21	24	53	57	84	127	141	47	43.34	27	3.30
AUBURN																
330660071 A01	22	0	0	0	0	5	5	9	10	11	14	19				
ROCHESTER																
335760001 A01	24	3	5	6	7	10	11	15	20	36	60	80	27	23.96	17	2.09
SYRACUSE																
336620002 A01	21	0	NO. OF SAMPLES (11) BELOW MIN. DET. EXCEEDS 50%									20				
NORTH CAROLINA																
GREENSBORO																
341740001 A01	24	0	0	0	0	0	6	7	7	10	11	20				
WINSTON-SALEM																
344460002 A01	22	0	0	0	0	5	7	10	12	23	35	41				
OHIO																
AKRON																
360080001 A01	23	0	0	6	7	9	11	26	37	53	85	166	31	39.11	15	3.54
DAYTON																
361030001 A01	23	0	0	0	7	13	15	17	19	28	32	53	17	14.94	12	2.67
CINCINNATI																
361220001 A01	25	5	9	10	12	16	18	19	19	17	24	37	17	10.09	15	1.61
361220003 A01	25	0	0	7	7	11	12	23	29	31	60	115	26	27.37	14	3.39
COLUMBUS																
361440001 A01	24	0	7	9	14	15	17	27	39	39	69	120	28	24.44	19	2.87
DAYTON																
361660001 A01	22	0	0	0	5	10	11	22	25	43	55	68	22	21.22	13	3.19
TOLEDO																
364070001 A01	26	3	0	0	5	7	9	14	22	25	37	61	15	15.43	9	2.72
YOUNGSTOWN																
367760001 A01	24	3	0	0	0	7	8	14	17	21	49	104				
OKLAHOMA																
TULSA																
373300001 A01	24	3	NO. OF SAMPLES (11) BELOW MIN. DET. EXCEEDS 50%									24				
PENNSYLVANIA																
ERIE																
394060002 A01	23	0	0	0	0	5	7	9	24	19	36	177				
PHILADELPHIA																
397140002 A01	25	3	10	14	20	30	54	62	76	79	119	129	56	30.65	37	2.84
PITTSBURGH																
397260001 A01	23	0	9	22	32	38	45	47	53	88	192	212	55	32.94	35	3.92
SCRANTON																
398040001 A01	24	3	0	0	7	9	11	24	33	56	70	192	33	39.94	15	3.67
YORK																
399560002 A01	24	3	0	5	6	7	7	10	11	19	32	63	22	18.97	9	2.31

Table 4-1 (continued). SULFUR DIOXIDE, URBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

SAMPLING INTERVAL : 24-HOUR

METHOD: BUBBLER/WEST-GAEKE

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, % 10	20	30	40	50	60	70	80	90	MAX.	ARITHMETIC MEAN	ARITHMETIC STD. DEV.	GEOMETRIC MEAN	GEOMETRIC STD. DEV.
PUERTO RICO																
BAYAMON																
660350002 A01	25	0	0	0	0	0	5	7	8	8	12	15				
TENNESSEE																
MEMPHIS																
447340001 A01	25	0	0	0	0	5	7	7	10	11	12	16				
TEXAS																
FORT WORTH																
451480001 A01	23	0	0	0	0	0	5	5	7	7	7	9				
PASADENA																
448060002 A01	24	0	0	0	0	0	0	5	7	7	7	9				
VIRGINIA																
NORFOLK																
482140001 A01	24	0	0	.	9	10	12	21	31	44	95	149	30	37.74	15	3.31
PORTSMOUTH																
482440001 A01	25	0	NO. OF SAMPLES (			14) BELOW MIN. DET. EXCEEDS 50%						35				
WASHINGTON																
SEATTLE																
491440001 A01	25	0	7	7	14	16	19	23	27	29	45	83	24	21.04	17	3.33
WEST VIRGINIA																
CHARLESTON																
500280001 A01	22	0	0	0	0	5	7	7	9	11	11	17				
WISCONSIN																
MADISON																
511460001 A01	26	0	0	0	5	7	7	10	14	15	21	75				

Table 4-2. SULFUR DIOXIDE, NONURBAN FREQUENCY DISTRIBUTION FOR 1971

YEAR : 1971

METHOD: BUBBLER/WEST-GAEKE

SAMPLING INTERVAL : 24-HOUR

UNITS : UG/CU METER (25 C)

LOCATION	NO. SAMP.	MIN.	FREQUENCY DISTRIBUTION, %									MAX.	ARITHMETIC		GEOMETRIC	
			10	20	30	40	50	60	70	80	90		MEAN	STD. DEV.	MEAN	STD. DEV.
DELAWARE																
KENT CO																
080060001 A03	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%									15				
FLORIDA																
HARDEE CO																
101640001 A03	26	0	0	0	0	0	5	5	7	7	8	10				
MAINE																
ACADIA NAT PARK																
200010001 A03	25	0	0	0	0	5	7	7	7	10	11	29				
MISSOURI																
SHANNON CO																
264480002 A03	22	0	0	0	0	5	5	7	7	7	9	44				
NEW HAMPSHIRE																
COOS CO																
300140001 A03	24	0	0	0	5	5	5	7	7	12	13	23				
NEW YORK																
JEFFERSON CO																
333340001 A03	24	0	NO. OF SAMPLES (13) BELOW MIN. DET. EXCEEDS 50%									14				
OKLAHOMA																
CHEROKEE CO																
370480001 A03	22	0	0	0	0	0	0	5	7	7	10	21				
SOUTH CAROLINA																
RICHLAND CO																
421900002 A03	22	0	0	0	0	0	5	7	7	9	11	12				
VIRGINIA																
SHENANDOAH NAT PAR																
482890001 A03	24	0	0	0	0	5	5	7	7	10	16	35				

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